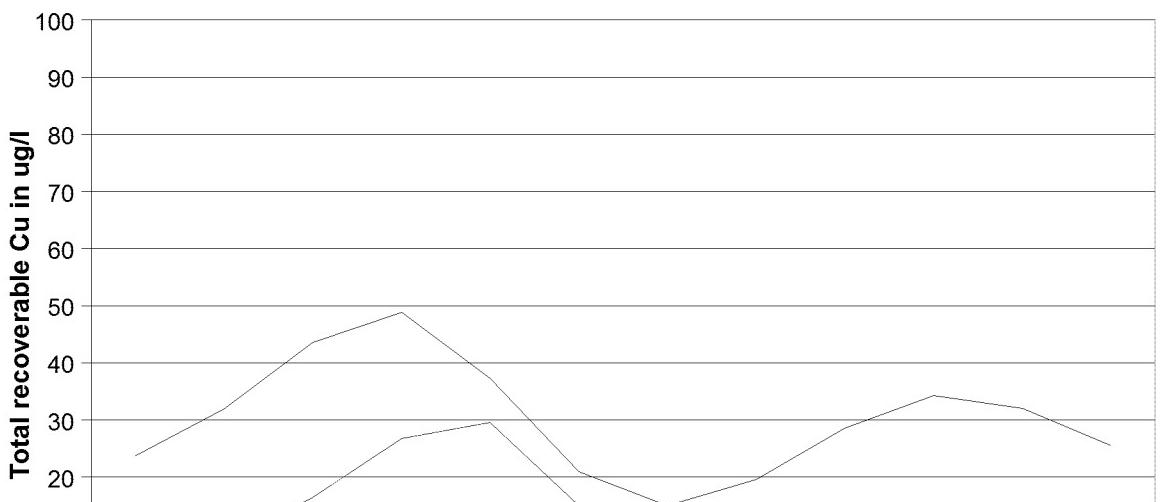
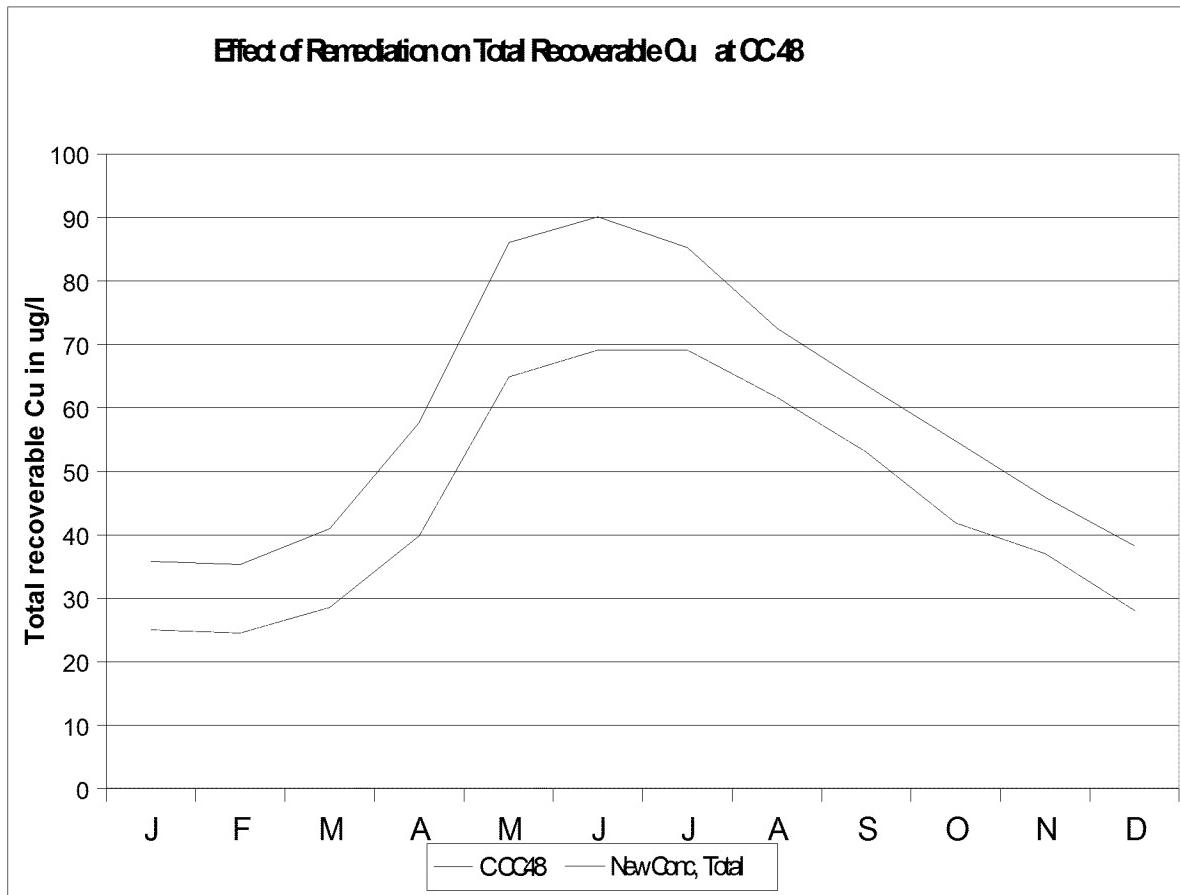
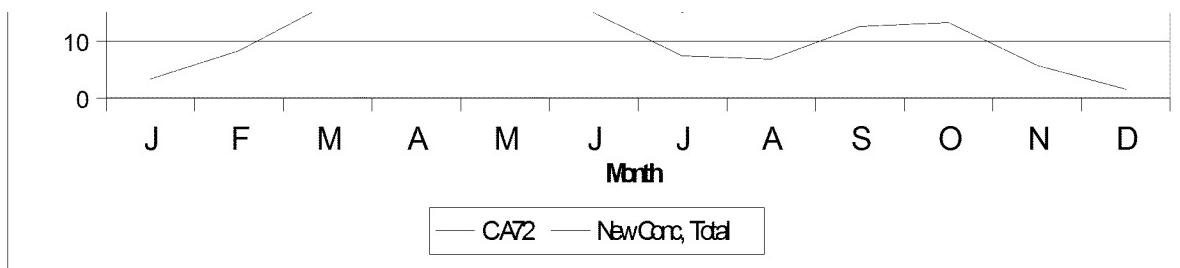


Make entries in yellow shaded areas only

M/D/Y	1	2	3	4	5	6	7
	J	F	M	A	M	J	J
Discharge in cubic feet per second							
Q A72	64	63	77	155	682	1196	625
Q M34	22	22	28	58	266	468	243
Q CC48	14	13	15	22	91	158	83
Q A68	25	25	31	66	329	585	300
Total Cu in ug/l							
C A72	24	32	44	49	37	21	15
C M34	52	58	67	66	44	24	19
C CC48	36	35	41	58	86	90	85
C A68	12	19	23	22	20	17	12
Change in pounds per day							
A 72	-7	-8	-11	-18	-28	-38	-26
M34	-6.00	-7.00	-10.00	-15.77	-16.30	-17.74	-17.11
CC48	-1	-1	-1	-2	-10	-18	-7
A68	0	0	0	-1	-2	-3	-2
Remediation Concentration in ug/l							
A 72 New Conc	3	8	16	27	30	15	7
M34 New Conc	3	0	0	16	32	17	6
CC 48 New Conc	25	25	29	40	65	69	69
A68 New Conc	10	17	21	21	19	16	11
TVS Concentration in ug/l							
A 72 TVS	11	11	10	8	4	3	3
M 34 TVS	20	19	18	14	8	6	7
A 68 TVS	14	14	13	11	7	6	7

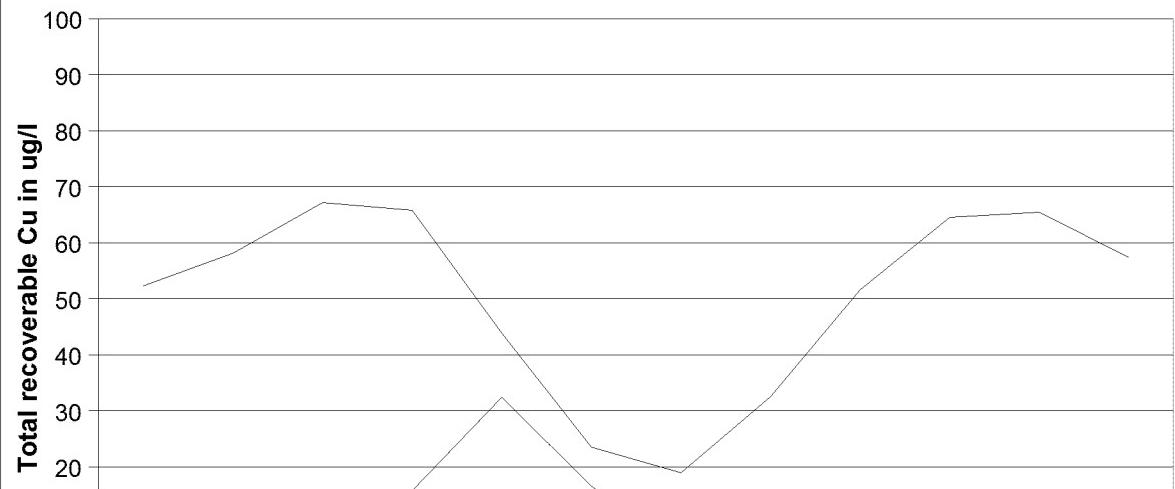
Effect of Remediation on Total Recoverable Cu at A72

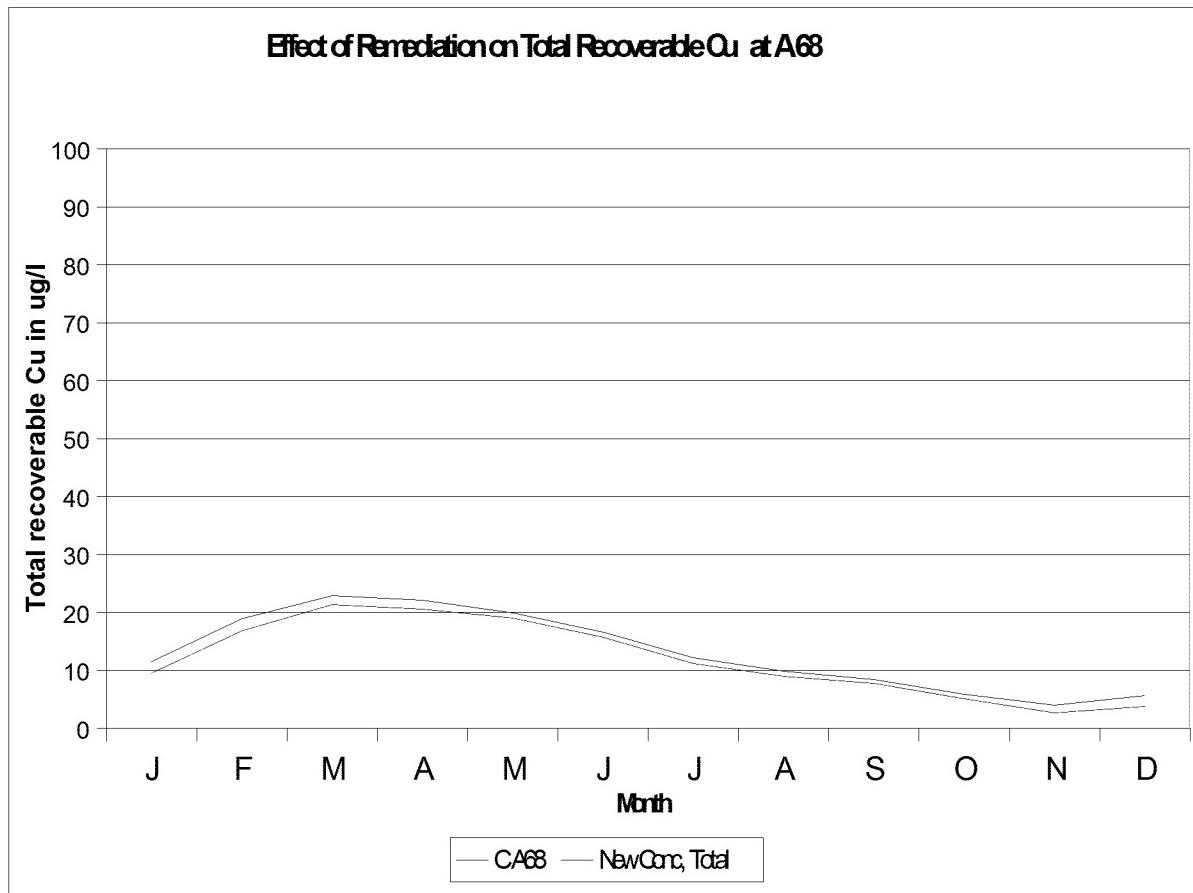
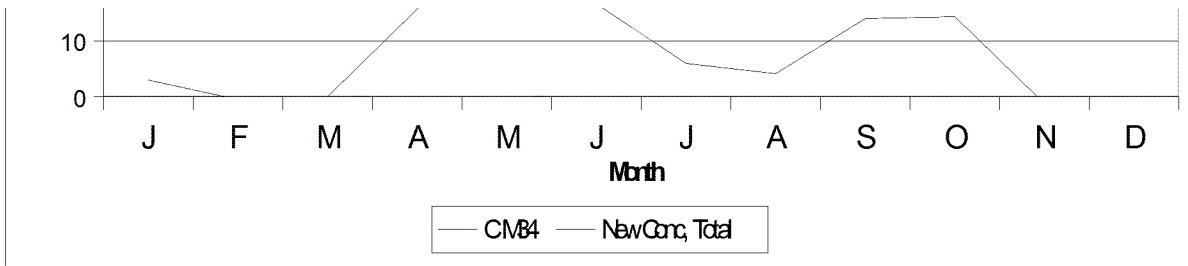




8 A	9 S	10 O	11 N	12 D
268	187	142	92	70
103	71	53	33	25
37	26	20	16	14
122	82	60	38	28
20	29	34	32	25
33	52	65	66	57
73	64	55	46	38
10	8	6	4	6
-18	-16	-16	-13	-9
-15.76	-14.41	-14.42	-12.00	-8.00
-2	-1	-1	-1	-1
-1	0	0	0	0
7	13	13	6	2
4	14	14	-1	-2
62	53	42	37	28
9	8	5	3	4
5	7	7	9	10
11	13	16	17	20
10	11	12	13	14

Effect of Remediation on Total Recoverable Cu at MB4





charge in cfs			Copper Concentration Coefficients			
	Intercept	coefficient		B	Intercept	
			Low Flow November-March			
M34	-2.771	0.394	-2.28954	<u>0.38718</u>	A72	0.001
CC48	1.752	0.130	6.77165	<u>0.10539</u>	M34	0.01
A68	-11.131	0.498	-3.62869	<u>0.45153</u>	CC48	1.00
					A68	0.00
						26.09165

Discharge Relationships among the three gages

MONTH	J	F	M	A	M	J	J
Intercept	1	1	1	1	1	1	1
A 72	64	63	77	155	682	1196	625
M34	22	22	28	58	266	468	243
CC48	14	13	15	22	91	158	83
A68	25	25	31	66	329	585	300
Ground water	3	3	3	9	-3	-14	-2

1/(1+BQ) Discharge Representation

A 72	0.9398	0.9407	0.9285	0.8658	0.5945	0.4554	0.6154
M34	0.8361	0.8385	0.8066	0.6633	0.3016	0.1969	0.3205
CC48	0.0689	0.0694	0.0629	0.0435	0.0109	0.0063	0.0119
A68	0.9754	0.9758	0.9698	0.9380	0.7527	0.6311	0.7691

Date variables

sin	0.1552	0.6358	0.9276	0.9887	0.7862	0.3629	-0.1441
cos	0.9879	0.7719	0.3737	-0.1496	-0.6180	-0.9318	-0.9896
sin1	0.3066	0.9815	0.6932	-0.2959	-0.9717	-0.6763	0.2852
cos1	0.9518	0.1916	-0.7207	-0.9552	-0.2361	0.7366	0.9585
Consent	1	1	1	1	1	1	1

A72	Intercept	1	1	1	1	1	1
	BQ	0.9398	0.9407	0.9285	0.8658	0.5945	0.4554
	sin	0.1552	0.6358	0.9276	0.9887	0.7862	0.3629
	cos	0.9879	0.7719	0.3737	-0.1496	-0.6180	-0.9318
	sin1	0.3066	0.9815	0.6932	-0.2959	-0.9717	-0.6763
	cos1	0.9518	0.1916	-0.7207	-0.9552	-0.2361	0.7366
	Consent	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

A72 Concentration **24** **32** **44** **49** **37** **21** **15**

M34	Intercept	1	1	1	1	1	1
	BQ	0.8361	0.8385	0.8066	0.6633	0.3016	0.1969
	sin	0.1552	0.6358	0.9276	0.9887	0.7862	0.3629
	cos	0.9879	0.7719	0.3737	-0.1496	-0.6180	-0.9318
	sin1	0.3066	0.9815	0.6932	-0.2959	-0.9717	-0.6763
	cos1	0.9518	0.1916	-0.7207	-0.9552	-0.2361	0.7366
	Consent	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

M34 Concentration **52** **58** **67** **66** **44** **24** **19**

CC 48	Intercept	1	1	1	1	1	1	1
	BQ	0.0689	0.0694	0.0629	0.0435	0.0109	0.0063	0.0119
	sin	0.1552	0.6358	0.9276	0.9887	0.7862	0.3629	-0.1441
	cos	0.9879	0.7719	0.3737	-0.1496	-0.6180	-0.9318	-0.9896
	sin1	0.3066	0.9815	0.6932	-0.2959	-0.9717	-0.6763	0.2852
	cos1	0.9518	0.1916	-0.7207	-0.9552	-0.2361	0.7366	0.9585
	Consent	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
CC 48 Concentratrion		36	35	41	58	86	90	85
A68	Intercept	1	1	1	1	1	1	1
	BQ	0.9754	0.9758	0.9698	0.9380	0.7527	0.6311	0.7691
	sin	0.1552	0.6358	0.9276	0.9887	0.7862	0.3629	-0.1441
	cos	0.9879	0.7719	0.3737	-0.1496	-0.6180	-0.9318	-0.9896
	sin1	0.3066	0.9815	0.6932	-0.2959	-0.9717	-0.6763	0.2852
	cos1	0.9518	0.1916	-0.7207	-0.9552	-0.2361	0.7366	0.9585
	Consent							
A68 Concentration		12	19	23	22	20	17	12
Concentratio		32	39	45	44	32	20	16
Load in pounds per day								
	Total Cu	11	13	18	38	140	187	83
	Dis Cu	8	11	18	41	137	135	51
	% Difference	-0.26	-0.14	0.01	0.09	-0.02	-0.28	-0.39
	RPD	0.29	0.15	-0.01	-0.08	0.02	0.32	0.48

Copper Concentration Coefficients

BQ	sin	cos	sin1	cos1	Consent
22.75607	7.43436	-0.44983	-3.82683	<u>-9.31243</u>	0.00
33.14	2.19	7.91	-4.53	-12.40	0.00
-867.50	0.00	0.00	0.00	0.00	0.00
-14.49469	8.15942	-0.05697	2.31854	<u>-2.43287</u>	0.00

A	S	O	N	D
1	1	1	1	1
268	187	142	92	70
103	71	53	33	25
37	26	20	16	14
122	82	60	38	28
6	8	9	4	3

0.7886	0.8425	0.8757	0.9158	0.9346
0.5276	0.6183	0.6835	0.7749	0.8222
0.0265	0.0368	0.0470	0.0572	0.0660
0.8910	0.9242	0.9438	0.9635	0.9728

-0.6271	-0.9360	-0.9878	-0.7716	-0.3573
-0.7789	-0.3521	0.1556	0.6361	0.9340
0.9769	0.6591	-0.3074	-0.9816	-0.6674
0.2135	-0.7521	-0.9516	-0.1908	0.7447

1	1	1	1	1
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1	1	1	1	1
0.7886	0.8425	0.8757	0.9158	0.9346
-0.6271	-0.9360	-0.9878	-0.7716	-0.3573
-0.7789	-0.3521	0.1556	0.6361	0.9340
0.9769	0.6591	-0.3074	-0.9816	-0.6674
0.2135	-0.7521	-0.9516	-0.1908	0.7447
1.0000	1.0000	1.0000	1.0000	1.0000

20	29	34	32	25
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1	1	1	1	1
0.5276	0.6183	0.6835	0.7749	0.8222
-0.6271	-0.9360	-0.9878	-0.7716	-0.3573
-0.7789	-0.3521	0.1556	0.6361	0.9340
0.9769	0.6591	-0.3074	-0.9816	-0.6674
0.2135	-0.7521	-0.9516	-0.1908	0.7447
1.0000	1.0000	1.0000	1.0000	1.0000

33	52	65	66	57
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1	1	1	1	1
0.0265	0.0368	0.0470	0.0572	0.0660
-0.6271	-0.9360	-0.9878	-0.7716	-0.3573
-0.7789	-0.3521	0.1556	0.6361	0.9340
0.9769	0.6591	-0.3074	-0.9816	-0.6674
0.2135	-0.7521	-0.9516	-0.1908	0.7447
1.0000	1.0000	1.0000	1.0000	1.0000

73 64 55 46 38

1	1	1	1	1
0.8910	0.9242	0.9438	0.9635	0.9728
-0.6271	-0.9360	-0.9878	-0.7716	-0.3573
-0.7789	-0.3521	0.1556	0.6361	0.9340
0.9769	0.6591	-0.3074	-0.9816	-0.6674
0.2135	-0.7521	-0.9516	-0.1908	0.7447

10 8 6 4 6

21	30	35	35	32
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40	34	28	17	12
28	29	26	16	10

-0.29	-0.15	-0.07	-0.09	-0.20	-0.15
0.33	0.16	0.07	0.09	0.22	

A72

Chronic TVS at A72
a2 b2

Cd	-2.715	0.7852
Cu	-1.7428	0.8545
Mn	5.8743	0.3331
Zn	0.8669	0.8473

Predicction Equation Coefficients
Hardness Aluminum Cadmium

B	0.006	1.000	0.006
Intercept	82.304	-26.540	1.020
BQ	200.676	5610.562	1.466
sin	16.936	158.116	0.599
cos	48.860	40.749	0.066
sin1	15.385	127.998	-0.265
cos1	-5.633	6.691	-0.292
Consent			

Month	J	F	M	A	M	J	J
Q	64	63	77	155	682	1196	625
Hardness	277	290	268	196	91	53	72
Al ch	87	87	87	87	87	87	87
Cd ch	5.5	5.7	5.3	4.2	2.3	1.5	1.9
Cu ch	11	11	10	8	4	3	3
Mn ch	2317	2352	2290	2064	1598	1333	1481
Zn ch	279	290	271	208	109	68	90

M 34

Prediction equation coefficients

Hardness Aluminum Cadmium Copper Iron Zinc

B	0.013	1.00	0.021	0.123	0.06521	0.021
Intercept	60.05228	15.10361	0.91724	14.65129	77.70523	05.25873
BQ	205.02801	38.29032	0.60966	00.98354	70.29706	78.11589
sin	9.24827	69.03843	0.26911	14.16661	-89.38888	88.77920
cos	32.30173	79.08681	0.20991	10.17487	38.04002	85.94018
sin1		435.43127	-0.12214	1.04278	86.24646	-17.99615
cos1		123.10453	-0.14689	-3.82920	-12.30367	-45.60154
consent		-265.10754		-10.75402	35.80515	-98.00378

	MONTH	J	F	M	A	M	J	J
Avg monthly	Q	22	22	28	58	266	468	243
Chronic Stan	Hardness	255	241	226	170	86	60	76
Al, ch		87	87	87	87	87	87	87
Cd, ch		2.4	2.3	2.1	1.7	1.0	0.8	0.9
Cu ch		20	19	18	14	8	6	7

Mn	2253	2212	2163	1969	1571	1389	1504
Zn ch	260	248	235	185	104	76	93

A68 Animas at Silverton

Prediction equation coefficients

Hardness Cadmium Copper Manganese Zinc

B	0.011	na	na	0.010	0.016
Intercept	37.945	2.395	5.783	258.473	304.617
BQ	165.600			1371.923	644.136
sin		1.712	2.049	611.024	315.451
cos		0.140	0.729	81.662	-18.603
sin1		-0.250	-1.520	16.031	-33.783
cos1		-1.185	-0.472	-263.628	-140.108
May		-1.936	2.261	-258.699	
consent		-0.714	-1.828	411.428	-67.174

Animas R	Month	J	F	M	A	M	J	J
		Q	25	25	31	66	329	585
	Hardness	168	168	161	134	74	60	76
	Cd,tvs	1.7	1.7	1.7	1.4	0.9	0.8	0.9
	Cu tvs	14	14	13	11	7	6	7
	Mn tvs	1959	1961	1934	1818	1491	1393	1508
onic stand	Zn tvs	182	183	177	151	91	77	94

ction Equation Coefficients

Copper	Iron	Zinc
0.100	0.048	0.014
11.592	325.430	272.266
-11.516	6156.248	697.432
5.618	310.323	155.229
5.955	262.025	37.490
1.700	-72.066	-37.359
-0.594	-177.065	-77.421
-1.491		

A	S	O	N	D
268	187	142	92	70
124	158	182	215	248
87	87	87	87	87
2.9	3.5	3.9	4.5	5.0
5	7	7	9	10
1772	1920	2013	2129	2233
141	173	195	225	255

Acute TVS at M34 Chronic TVS at M34

a2 b2 a3 b3

Cd	-3.828	1.128	-3.49	0.7852
Cu	-0.7703	0.9422	-1.7428	0.8545
Mn	4.4995	0.7893	5.8743	0.3331
Zn	0.8904	0.8473	0.8669	0.8473

A	S	O	N	D
103	71	53	33	25
126	151	192	217	253
87	87	87	87	87
1.4	1.6	1.9	2.1	2.3
11	13	16	17	20

1783	1892	2050	2136	2246
144	167	205	227	258

Chronic TVS at A68

a2 b2

Cd	-3.49	0.7852
Cu	-1.7428	0.8545
Mn	5.8743	0.3331
Zn	0.8669	0.8473

A	S	O	N	D
122	82	60	38	28
109	125	138	155	165
1.2	1.4	1.5	1.6	1.7
10	11	12	13	14
1695	1777	1836	1908	1947
126	142	155	171	180